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Career Choice of 'Fifth Pathway' Graduates From New York State Medical Schools

Barry Stimmel, M.D., and Harry Smith, Jr., Ph.D.

Abstract—Graduates of "fifth pathway" programs at medical schools in New York state between 1976 and 1978 were studied to determine their professional careers and choice of medical specialties. Of the 545 physicians participating in the program, 510 were able to be located. Of this latter cohort, 177 (34.7 percent) had entered primary care fields as of 1981. Of the physicians no longer in residency training, 19.1 percent had full-time salaried positions in academic institutions, and the remaining physicians were engaged in various clinical medical activities. Of the 545 fifth pathway graduates, 74 (13.6 percent) had not been able to pass the licensing examinations as of 1981, and an additional 54 (9.9 percent) had not taken those examinations. Comparisons with regular students graduating from a medical school in New York state showed that fifth pathway graduates were more likely to select nonprimary care specialties than primary care specialties ($p < 0.001$). These data suggest that although a majority of graduates of fifth pathway programs in New York state are involved in the provision of health care, a small number are still unable to engage in the practice of medicine.

In 1971 the Council on Medical Education of the American Medical Association (AMA) published a policy statement concerning U.S. citizens graduating from Mexican medical schools to allow these individuals to become eligible to practice medicine in this country without obtaining a medical degree from the Mexican school (1). The inability of the student to obtain the degree is related not to academic performance but rather to the requirement of the Mexican government for an additional two years of clinical training after graduation, one being a year of social service.

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A program described in the AMA statement, which has come to be known as the "fifth pathway" program, permits a student who successfully completes a year of clinical training under the supervision of an American medical school to participate in the National Resident Matching Program and to qualify for licensure. The fifth pathway graduates may never obtain the M.D., although at least one state has agreed to award this degree retroactively after the graduate has practiced medicine for three years in the state after completion of residency training. Although occasionally a person graduating from a foreign medical school other than one in Mexico may participate in this program to gain extra clinical training, the AMA and state licensing boards recognize the

fifth pathway policy as pertaining only to graduates of Mexican schools.

As many as 41 American medical schools sponsored fifth pathway programs over the past decade, enrolling a total of approximately 2,500 students. The medical schools of New York state have been especially prominent in sponsoring such programs, enrolling approximately 55 percent of all fifth pathway students during the 1981–1982 academic year (2).

Although the fifth pathway program has become a well established track for entry into the practice of medicine, the program remains controversial and is not broadly accepted. The Association of American Medical Colleges (AAMC) has expressed concern about the program (3, 4). Since 1975 a committee of the Associated Medical Schools (AMS) of New York has been addressing the issue of U.S. citizens in foreign medical schools, focusing specific attention on fifth pathway programs in New York state (4). A centralized admissions process and admissions standards have been developed by each New York medical school for all of their affiliated institutions participating in fifth pathway programs, and data have been collected and forwarded annually to the AMS for analysis and review.

Data concerning specialty selection of graduates of fifth pathway programs in New York state and their ability to pass the Federation Licensing Examination (FLEX) of the Federation of State Medical Boards have appeared in a number of reports and publications (4–6). However, little information has been provided concerning the final specialty choice of these students, their professional activity, or the state in which they reside once their training has been completed. The authors in this report address these issues with analysis of data on those students who completed fifth pathway programs in New York in the classes of 1976 through 1978.

Description of Study

Information on all students completing fifth pathway programs in New York in June 1976, June 1977, and June 1978 was obtained from the following sources: (*a*) the National Board of Medical Examiners (NBME), with the approval of the Federation of State Medical Boards, on the performance of the students on the FLEX from June 1976 through June 1981 and (*b*) the Department of Data Release Services of the AMA. Career, licensure, and certification data from the AMA Physician Masterfile were obtained through 1981 on the fifth pathway graduates. No individual data existed concerning fail and pass rates on either the FLEX or certification examinations. Data concerning specialties were aggregated into primary care specialties (general internal medicine, general pediatrics, and family practice or general practice) and nonprimary care specialties, consisting of all other fields, including the subspecialties in internal medicine and pediatrics. Since over 95 percent of all of the participants were enrolled in Mexican medical schools, comparative analyses between the graduates' careers and country of origin of foreign medical school were not performed.

In order to provide comparative data about students graduating from a medical school in New York, demographic data on students from the Mount Sinai School of Medicine graduating in the classes of 1976 and 1977 were similarly reviewed. Statistical differences were tested utilizing chi-square.

Results

The three classes of fifth pathway graduates totaled 545. Information on the

TABLE 1

Selection of Specialties and Subspecialties by 510 'Fifth Pathway' Graduates, by Graduating Classes, 1976–1978, as of December 1981

Specialty	1976	1977	1978	Total	
				No.*	Percent†
Anesthesiology	3	11	8	22	4.3
Dermatology	1	2	1	4	0.8
Emergency medicine	5	4	4	13	2.5
Family practice	14	17	17	48	9.4
Internal medicine	23	40	42	105	20.6
Subspecialties	19	20	14	53	10.4
Neurology	2	0	0	2	0.4
Obstetrics and gynecology	13	22	20	55	10.8
Occupational medicine	0	1	0	1	0.2
Ophthalmology	4	7	6	17	3.3
Pathology	0	2	4	6	1.2
Pediatrics	6	6	12	24	4.7
Physical medicine and rehabilitation medicine	1	1	1	3	0.6
Psychiatry	11	11	11	33	6.5
Radiology	11	10	2	23	4.5
Surgery					
General	12	10	12	34	6.7
Neurosurgery	0	0	1	1	0.2
Orthopedics	6	13	12	31	6.1
Otolaryngology	4	5	2	11	2.2
Plastic	1	0	0	1	0.2
Urology	5	8	10	23	4.5
Total	141	190	179	510	100.1

* Numbers include those in professional activities and those still in residencies.
† Percentages do not sum to 100 percent due to rounding.

FLEX was obtained from the NBME on 491 (90 percent); the NBME had no record of the other 54 (10 percent) ever having taken the FLEX. Information from the AMA was obtained on 510 (93.6 percent) of the 545 physicians.

The individual specialty selections of the 510 fifth pathway graduates are displayed in Table 1. Internal medicine and its subspecialties represented the most frequent selection (31 percent). Surgery and its specialties were selected by 19.9 percent, and obstetrics was chosen by 10.8 percent. Separation of these specialties into primary care and nonprimary care showed that 177 (34.7 percent) entered primary care and that 333 (65.3 percent) entered nonprimary specialty care.

The medical professional activities in which the fifth pathway graduates were involved are listed in Table 2. The significant differences between career choices of the class of 1978 and the other two classes were mainly due to the fact that a majority of the 1978 graduates were still in residency training at the time of the data collection. If the resident category is eliminated from this analysis, then 54 (19.1 percent) graduates indicated that their major activity was in the academic field, and 229 (80.9 percent) indicated that they were engaged in clinical activities ($p < 0.001$).

TABLE 2

Choice of Professional Medical Activities of 510 'Fifth Pathway' Graduates, by Graduating Classes, 1976–1978, as of December 1981

Professional Activity*	1976	1977	1978	Total
Academic	18	22	14	54
Office	61	71	30	162
Hospital	15	10	6	31
Other	18	12	6	36
Resident	29	75	123	227
Total	141	190	179	510

* Chi-square ($df = 8$) = 82.699 ($p < .0001$). If resident category is eliminated, then chi-square ($df = 6$) = 5.034 ($p = .5395$).

An analysis of professional activity by primary care versus nonprimary care showed that the percentage of physicians going into nonprimary care specialties in the academic setting, 13.2 percent, was significantly higher than the proportion going into academic medicine in one of the primary care fields, 5.6 percent ($p < 0.01$).

The number of fifth pathway graduates not obtaining licensure, based on data obtained from the NBME, is itemized in Table 3. Through June 1981, 74 students (13.6 percent of the total population of 545) had not passed the FLEX despite numerous attempts, and 54 (9.9 percent) had no record of ever having taken the examination. Licensure data obtained from the AMA revealed that 50 (9.8 percent) of the 510 graduates did not list themselves as having licensure. A comparison of licensed and nonlicensed physicians with respect to primary care and nonprimary care specialties did not reveal any significant differences with respect to distribution of the graduates between the two groups and licensure. However, if one reviews only professional activity, then a difference is observed; as might be expected, those graduates in academic medicine or in residency had significantly lower licensure rates than those engaged in clinical activities (87 percent and 83.7 percent versus 97.4 percent, respectively, chi-square = 24.806, $p < 0.001$). Of the total number of nonlicensed physicians, 37 (74 percent) were still in residency training.

TABLE 3

'Fifth Pathway' Graduates Not Passing and Not Taking FLEX for Licensure, as of June 1981

Class	No.	Not Passing FLEX		Not Taking FLEX	
		No.	Percent	No.	Percent
1976	154	23	14.9	18	11.7
1977	181	26	14.4	28	15.5
1978	210	25	11.9	8	3.8
Total	545	74	13.6	54	9.9

Comparative data on graduates of fifth pathway programs in 1976 and 1977 and those from the Mount Sinai School of Medicine (MSSM) for the same years showed several differences with respect to individual specialty selection (Table 4). The fifth pathway graduates were more likely to select family practice ($p < 0.025$) and radiology ($p < 0.01$) and less likely to select pediatrics ($p < 0.001$) than the MSSM graduates. Comparison of the selection of primary care specialties and the other specialties by these two groups (Table 5) also revealed significant differences. Individuals graduating from fifth pathway programs were more likely to select nonprimary specialty care than the Mount Sinai graduates ($p < 0.001$).

All of the graduates of the MSSM were licensed; almost all obtained licensure

TABLE 4

Comparison of Choices of Specialty or Subspecialty by 331 'Fifth Pathway' Graduates and by 148 Mount Sinai School of Medicine Graduates, Classes of 1976 and 1977, as of December 1981

Specialty	Fifth Pathway		Mount Sinai	
	No.	Percent§	No.	Percent
Anesthesiology	14	4.2	2	1.4
Dermatology	3	0.9	7	4.7
Emergency medicine	9	2.7	0	0.0
Family practice*	31	9.4	4	2.7
Internal medicine	63	19.0	27	18.2
Subspecialties	39	11.8	24	16.2
Neurology	2	0.6	1	0.7
Obstetrics and gynecology	35	10.6	12	8.1
Occupational medicine	1	0.3	0	0.0
Ophthalmology	11	3.3	5	3.4
Pathology	2	0.6	4	2.7
Pediatrics†	12	3.6	27	18.2
Physical medicine and rehabilitation medicine	2	0.6	0	0.0
Psychiatry	22	6.6	17	11.5
Radiology‡	21	6.3	1	0.7
Surgery				
General	22	6.6	5	3.4
Specialty	42	12.7	12	8.1
Total	331	99.8	148	100.0

* $p < 0.025$.
† $p < 0.001$.
‡ $p < 0.001$.
§ Percentages do not sum to 100 percent due to rounding.

TABLE 5

Selection of Primary Care Specialties and Other Specialties by Graduates of 'Fifth Pathway' and by Mount Sinai School of Medicine Graduates, Classes of 1976 and 1977, as of December 1981

Specialty	Fifth Pathway		Mount Sinai	
	No.	Percent	No.	Percent†
Primary Care				
Family practice	31	9.4	4	2.7
General internal medicine	63	19.0	27	18.2
Pediatrics	12	3.6	27	18.2
Other specialties*	225	68.0	90	60.8
Total	331	100.0	148	99.9

* Chi-square = 33.88 ($p < 0.001$).
† Percentages do not sum to 100 percent due to rounding.

through the NBME examinations. Certification by the American Board of Internal Medicine of fifth pathway graduates and of the MSSM graduates showed that 18 (17.6 percent) of the 102 fifth pathway graduates choosing internal medicine were certified as compared with 36 (70.5 percent) of the 51 MSSM graduates who chose internal medicine ($p < 0.01$).

An analysis of where fifth pathway and MSSM graduates located showed no essential difference between the percentages

of fifth pathway graduates (52.3 percent) and MSSM graduates (48.7 percent) choosing New York state as their permanent residence.

Discussion

Although some information was obtained from the AMA on at least 93.6 percent of the fifth pathway graduates in New York from 1976 to 1978, the information pertaining to demographic characteristics of these physicians was based on self-reported data and, therefore, must be interpreted cautiously. The data obtained from the NBME were far more objective in providing evidence of the ability of these physicians to pass the FLEX. However, in the past it had been possible in several states for a physician to be licensed without taking either the FLEX or the NBME examinations. Although this route of licensure probably occurred infrequently, it must be kept in mind when reviewing data concerning those physicians who have never taken the FLEX before assuming that they are not practicing medicine. The use of a comparison group consisting of physicians graduating from one specific medical school rather than all of the medical schools in the state is also not without risk. However, data pertaining to the career choices of all graduates from those New York schools offering fifth pathway programs were not readily available.

The data suggest that graduates of fifth pathway programs in New York are involved in the provision of health care, with approximately one-half of these individuals choosing that state as their permanent residence. The fifth pathway graduates chose primary care specialties significantly less frequently ($p < 0.001$) than the MSSM graduates. However, again compared with the MSSM graduates, the fifth pathway graduates tended to enter family practice, anesthesiology, and emergency medicine more frequently. All of these fields are considered to be underserved by U.S.-trained physicians. More recent data, provided by the Associated Medical Schools of New York, indicate that an increasing proportion of fifth pathway students are choosing primary care specialties (61 percent in 1983 and 71 percent in 1984). Both fifth pathway and MSSM graduates chose to stay in New York in similar proportions upon completion of their residencies.

The quality of the training of fifth pathway participants after they complete fifth pathway programs and the quality of their medical practice are, of course, difficult to evaluate. On the FLEX, the pass rate of these students (79 percent) was considerably higher than those of other foreign-trained graduates (56 percent) ($p < 0.001$) yet lower than that of U.S. graduates (96 percent), according to data provided by the NBME. The dominant variable differentiating the training of these fifth pathway physicians from other foreign-trained physicians is apparently the fifth pathway program. The pass rates for fifth pathway graduates completing their training in later years have continued to improve.

Rosner and Mulvihill (7) presented data suggesting that the clinical performance of fifth pathway students during residency training is favorable. The data, however, must be tempered by the fact that many of these students usually are trained in residency programs of low acceptability to graduates of U.S. medical schools, and thus it is difficult to make peer comparisons. In fact, in the 1982 National Resident Matching Program match, 23 percent of the programs, which offered 2,200 positions or 12 percent of the total available positions, did not match with a single U.S. graduate.

Data concerning professional activities of fifth pathway physicians upon completion of their training indicate that a considerable proportion (19.1 percent) have obtained full-time, salaried positions in academic institutions. This figure is somewhat higher than the 13 percent reported on the basis of surveys on all U.S. physicians (8). Not unexpectedly, the greater proportion of fifth pathway physicians have gone into medical practice.

In attempting to determine the ability of these physicians to become certified in a given field, the authors chose certification by the American Board of Internal Medicine (ABIM) to illustrate the point for several reasons. Internal medicine represented the specialty chosen by the greatest proportion of the fifth pathway and the MSSM physicians. In addition, the requirements of other specialty boards would have prevented a significant number of fifth pathway physicians who graduated in the classes of 1976 and 1977 from completing the necessary requirements to qualify for certification by 1981, when the present study was terminated. The ABIM data revealed that fifth pathway physicians had a considerably lower rate of certification (17.6 percent) when compared with their U.S.-trained cohorts (70.5 percent) ($p < 0.01$). These findings are similar to those published by others, who have indicated that U.S. citizens trained abroad perform at levels significantly below the level of U.S.-trained physicians on the ABIM's certifying examinations as well as on other standard examinations (9, 10). The findings of the present study are also similar to those of French and Seman (11), who reported a 20 percent ABIM certification of fifth pathway program graduates in New Jersey.

It is difficult to correlate the information obtained from the AMA with that received from the NBME. If it is assumed that the 35 persons who did not file a professional activity report with the AMA were unable to obtain licensure, then there were 85 unlicensed physicians (15.6 percent of the total 545 fifth pathway students). Of the 50 persons reporting a professional activity to the AMA who had not obtained licensure, not unexpectedly 37 (74 percent) were still in residency training. It is assumed that the remaining 26 percent were practicing medicine under the supervision of a licensed physician. These data are similar to those of McGuinness and Mason (12), who found that 13 percent of 550 U.S. students 10 years after graduating from a foreign medical school had not qualified for graduate medical education in this country. An additional 61 (11 percent) had never become licensed practitioners.

Conclusions

In summary, the data in the present study indicate that physicians completing fifth pathway programs have developed skills to a greater degree than foreign-trained Americans not taking such programs, which allow a considerable proportion of the participants to enter academic medicine. The performance of these individuals on the FLEX has continued to improve, with later cohorts demonstrating passing rates as high as 90 percent. Although the enthusiasm of the AAMC for the fifth pathway programs has not appeared to be great (3, 4), these programs in New York state are facilitating the development of skills and entry of physicians trained in Mexican medical schools into the practice of medicine in New York state and thus fulfilling one of the major objectives of the program. Recent data from the National Resident Matching Program indicate that fifth pathway physicians are gaining increasing acceptance

by the medical community. In the 1984 match, the match rate of these physicians was 78 percent, compared with 50 percent for osteopathic graduates and 44 percent for other U.S. citizens who were foreign medical graduates (13).

While these programs have been incorporated into the academic community of seven medical schools in New York, there is a possibility that fifth pathway programs will soon be extinct. Mexican authorities reportedly are considering discontinuing the requirement of two years of clinical service before the medical degree can be awarded in Mexico. Although the New York State Education Department allows graduates of a foreign medical school who have completed a residency and have practiced for three years in New York to receive a medical degree from the State University of New York, it is probable that, should the Mexican clinical requirement be discontinued, few, if any, students would choose the expense of an extra year of clinical training prior to entering a residency. If the Mexican requirements for licensure remain unchanged, however, the status of fifth pathway programs in New York still remains uncertain. The State Education Department is unenthusiastic about this program, and the State University of New York has announced its intention to discontinue the fifth pathway programs in state schools in the near future.

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Timing and Motivation in Pediatric Career Choices

Robert Adler, M.D., Barbara Marie Korsch, M.D., and Vida Francis Negrete

Abstract—A total of 257 third-year residents in pediatrics, internal medicine, and family practice were asked about their career goals for the year following their residency and in five years, and information was obtained from them about their motives for career choices. The authors specifically examined the following: humanitarian interests; intellectual motivation; service motives; and practical, personal, and financial considerations. The characteristics of the residency training program which may have influenced their career choices were also examined. A majority of the 214 pediatric residents said they had not considered going into pediatrics on entry to medical school. Of these residents, 109 planned academic pursuits for the following year, while only 81 of the 109 anticipated an academic career within five years. Intellectual stimulation, geographic location, and an "opportunity to clarify goals" were the three most frequently mentioned factors in choosing positions for the following year.

Career planning in medicine has been investigated for more than 100 years. Recent literature has documented some factors which influence individuals to seek a medical career and then motivate them to choose a particular specialty (1). In the spring of 1982, the authors of the present paper studied one cohort of third-year residents to explore the timing of their career selection, the types of careers chosen, and the motivation for their choices.

Background

Medical students' characteristics, (for example, demographic background, academic achievements, financial obligations, personality, and health) have been looked at in an attempt to find correlates to eventual career choices (1, 2). Positive correlations were found between general practice and the student's age, small community of origin, low socioeconomic background, and low academic status. Influences of the medical school experience, the exposure to faculty members as role models, the size of the operating budget, private versus public medical school, the ratio of the size of the school's clinical staff to that of the nonclinical staff (3–6), and the timing and sequence of patient exposure and rotations in medical school also affected career decisions (7). Funkenstein (8), in his study of Harvard Medical School students, stressed societal factors outside the medical school as a major

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influence in career choices. Although the magnitude of the impact of societal forces on career choices is hard to assess, the current interest in and emphasis on primary care has certainly had an impact on the orientation of today's medical students and residents.

Investigators have explored not only the nature but also the timing of career choices and have found that approximately one-fourth of those entering medical school maintained their career choices while the remainder changed their minds at least once during medical school (9). Another study showed that three-quarters of the undecided medical students made their decision in the last two years of medical school and that most make it after the third-year clerkship (5).

The influence of the residency years on subsequent career decisions has been poorly documented (10, 11). The impact of such factors as the resident's age, marital status, and academic achievement in residency on the resident's career choice has not been studied. There are no data to suggest how residents' attitudes or personal values relate to their career decisions.

Features of residency training programs which may influence career choices are of special interest to postgraduate medical educators, since these features may be subject to modification. Such features may include exposure to full-time faculty members and practicing community pediatricians as role models, exposure to different types of patients, the providing of opportunities for research and academic pursuits to the residents, the providing of opportunities to work in different types of settings, the stress of the training program, and the balance in the program of subspecialty rotations versus general and ambulatory experience. Again, there is little information available on how these factors affect career decisions.

One attempt to change career choice by modifying training has been to increase funding for primary care training programs. Preliminary studies of the primary care residency have shown a small increase in the number of residents who go on to primary care practice (12).

Societal factors working through economic incentives and the availability of jobs would seem to be more important to the resident about to finish his residency than to medical students. The resident's indebtedness and perceptions of what jobs will be available influence his planning, but again no data are available on how these may influence career choices.

Methods

A total of 342 questionnaires were mailed by the authors in May 1982 to third-year residents in 25 training programs, consisting of 21 pediatric programs, two internal medicine programs, and two family practice programs. The programs were chosen because they represented a variety of training settings (such as university- or community-based), program size, locations (such as urban and rural), and academic versus clinical orientations.

An eight-item questionnaire was developed that explored career decisions retrospectively, and an additional open-ended item was included that allowed for further comments regarding career plans. The authors were interested in career plans at the start of medical school and at the start of the residency, career plans for the year following the residency, and those for five years hence.

The questionnaire was also intended to obtain information as to the extent career choices were determined by the following: service motives and humanitarian interests, intellectual motivation, and practi-

cal, personal, or financial considerations. The authors also sought to find out whether characteristics of the residency training program could be identified that were influential in career choices.

Results

Of the 342 questionnaires that were mailed, 257 were returned. For all but two of the programs, the response rate ranged from 60 to 100 percent. The pediatric training programs sampled represented nine states, and the responding residents had attended undergraduate programs in 31 states and 10 foreign countries. Among the respondents were 214 third-year pediatric residents, of whom 119 were male and 130 were married. The remaining respondents were internal medicine and family practice residents.

PEDIATRIC RESIDENTS

Only 40 percent of those finishing their third-year pediatric training had considered going into pediatrics at entry into medical school. Thirty-five percent had changed their minds during medical school or the residency—22 changed from medicine to pediatrics, 11 changed from surgery to pediatrics, and 41 changed from other subspecialty choices. The remaining 25 percent had no definite career goal on entry to medical school. The clinical years in medical school and the completion of the first year of residency were the times when a majority of the career changes were initiated. Those residents who changed their career goals in medical school were more prone to mention disenchantment with the challenge and scope of private practice, whereas those who changed their minds during the residency more frequently attributed the change to disenchantment with academia. Those residents who mentioned humanitarian motives as having been important throughout their career choices were less likely to have had career changes than those who mentioned other motives.

A total of 109 of the pediatric residents planned academic pursuits for the following year. Of these, only 81 were anticipating an academic career after five years. For the next year, 19 chose to work in an emergency center or to take a fellowship in emergency medicine, 17 elected government or community service, 11 opted for prepaid group practices, and 17 were undecided or chose to enter another residency program. Forty-one respondents chose private practice for the next year. However, 79 anticipated being in general pediatric practice five years after their residency program ended (Table 1).

When the residents were asked which factors were considered "very important" in their choices of positions for the following year, intellectual stimulation, geographic location, and an "opportunity to clarify goals" were the three most frequently mentioned. The opportunity to help people and to give a higher priority to personal and family life were also frequent explanations.

The responses of the 99 pediatricians who stressed the opportunity to help people were examined to see whether intellectual stimulation was also an important factor in their career choice. Thirty-five did not rate intellectual stimulation as important; of these, all but eight chose practices as their probable career in five years, with most expecting to begin practice immediately after completing residency.

Twelve percent of the pediatric trainees responded that they chose their career because it would be enjoyable. Less frequently mentioned reasons were: a less demanding work schedule, indepen-

TABLE 1

Career Choices for 'Next Year' and 'In Five Years' of 214 Responding Pediatric Residents from 21 Programs, 1982

Career	'Next Year'	'In 5 Years'
Academia	109	81
Private practice	41	79
Emergency medicine	19	6
Government or community service	17	17
Prepaid group practice	11	14
Other or changing	17	17

dence, practical family pressures, and long-term security. Of 65 residents who found their residency extremely stressful, 12 chose emergency centers for the following year. Financial considerations figured in the decisions of 38 of the respondents, and debt repayment motivated 35 respondents. Only eight of the 42 pediatric residents who noted a need to repay debts as important in their career choice for the following year were ultimately planning academic careers.

Intellectual stimulation was deemed very important by 82 percent of those who chose academic careers for the following year. Of this group, 47 percent planned to continue in academic careers in five years compared with only 38 percent in the overall pediatric sample. Of those who chose academic pediatrics, role models during training were reported as very important. The pediatric respondents from residency programs in academic medical centers tended to look for intellectual stimulation and were more likely to anticipate academic careers in the future. Respondents who planned academic careers were unlikely to state that giving high priority to family or personal life was an important basis for their decision. Women who were in residency programs in academic medical centers and chose an academic future were not likely to feel that their gender had been crucial in their career choice.

When asked to rate which training experiences influenced their career choices, 101 respondents mentioned the educational environment, and 94 noted "exposure to certain types of patients." "Disenchantment with the challenge and scope of private practice" as experienced during training was rated as very important in their career choices by 56 of the pediatric trainees. Role models were rated as very important by 43.

Of the pediatric residents who were remaining in academic medicine for the following year, 64 gave definitive statements about their plans. Of these, 15 chose chief resident positions, 18 chose intensive-care-related fellowships, 8 chose areas related to public health, 2 were going to pursue a Ph.D. program, and the remainder chose assorted subspecialties.

OTHER RESIDENTS

The sample of internal medicine and family practice respondents was so small that no detailed analysis was undertaken on these data. The internists answering the questionnaire differed from the pediatricians in that 75 percent, compared with 43 percent of the pediatricians, felt that role models had been important in their career decision-making. Exposure to certain kinds of patients was a less frequent explanation of career choice for the internists. The opportunity to help people was reported as a motivating factor by only 25 percent of the internists. Only one internal medicine candidate men-

tioned enjoyment as motivating his career choice.

Discussion

In the pilot study described here of career choices made by pediatric residents, the authors explored when these choices were made and what factors motivated them. The study showed that only 40 percent of the pediatric residents had intentions of pursuing a pediatric career when they entered medical school. Changes in career choice were found to occur often during the third year of medical school and after completion of the first year of residency. This finding confirms other studies showing that a majority of career changes occur during the third year of medical school training. Therefore, significant opportunity exists to influence career decisions of trainees.

Paiva and colleagues (7) emphasized that pediatric role models in the third year of medical school had a profound influence on the students' eventual decision to go into pediatrics. Some residents in the present study indicated that they became disenchanted with the scope and challenge of private practice during medical school and, therefore, planned to pursue an academic career after their residency program. During the second year of residency, the changes tended to be in the direction of private practice, as the trainees became disenchanted with academia.

There has been concern that the increase in indebtedness of medical students will by necessity influence their career goals and, in fact, may have a profound effect on the ability of individuals from some socioeconomic levels to pursue a medical education. Forty-two of the respondents in the present study stated that they had chosen a career enabling them to repay debts incurred during medical training. As the impact of decreased financial aid and the rising cost of medical education has become more acute in the last two years, the full effect of this trend may not yet be visible.

One part of the present investigation focused on the choice of an academic career in pediatrics. The residents who had plans for academic medicine consistently rated intellectual stimulation as a major motivation. These residents generally did not stress family needs and priorities or personal considerations, and gender did not influence those women who opted for academic careers. Residency programs based in academic medical centers were frequently the source of future academicians. Whether these programs had been elected because of an earlier academic interest or were influencing such planning cannot be determined from the data. Role models, both positive and negative ("disenchantment with private practice"), were influential for those choosing academic medicine. As indicated earlier, financial indebtedness appears to preclude choices of careers in academia. Therefore, improving funding for medical studies and providing academic stimulation, including strong academic role models, might increase the number of pediatric residents choosing careers in academic pediatrics.

It is discouraging to note that, unlike the future academicians, the residents who chose private practice were unlikely to report that they expected intellectual stimulation in their future careers. Humanitarian motives consistently and practical considerations frequently were paramount in this group. These findings may relate to the generally acknowledged disenchantment and dissatisfaction experienced by pediatricians in private practice (13). A circular phenomenon of unstimulating, dissatisfied practitioner role

models discouraging candidates with a quest for intellectual stimulation could be postulated. An active search for more competent and inspiring practitioners to participate in graduate education could break the cycle.

Stress is a significant component of all pediatric training programs, and some investigators have suggested that many residents had "burned out" at the completion of their training and, therefore, would choose a career goal without a major commitment (14, 15). The authors of the present study were curious as to whether there is a trend for physicians to work temporarily in an emergency center in order to avoid any long-term commitment and to escape making close relationships with patients while at the same time making a substantial income in a short period of time. The results of the study show that 9 percent of the pediatric residents did, in fact, elect an emergency center position for the year following the residency, especially those residents in residency programs based in academic medical centers who felt stressed by their experience. Only a few of these anticipated a lifetime career in emergency medicine; nevertheless, it would seem that the stressful training experience may influence initial career choices.

In conclusion, it appears that there may be ways to modify the medical school curriculum and graduate pediatric education to influence career decisions. Further study of the quality and timing of the pediatric clerkship, of patient exposure, and of the impact of role models in medical school is needed. Graduate pediatric education also should receive more systematic study. The amount of stress experienced by the trainees, the amount of intellectual stimulation, the research experience and other challenging learning opportunities, role models encountered, and the debts incurred during medical education are only some of the factors which may influence residents in their career choice.

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